



M282738B.1

ITEM NUMBER: 282738
SERIAL NUMBER: _____

Owner's Manual

Boom Kit: Outdoor agricultural sprayer attachment used to broadcast spray herbicides, pesticides, and insecticides.


	⚠ WARNING
	Read this manual. Serious injury or death can result if safety instructions are not followed. Everyone who operates this machine must read and completely understand all safety rules, operating instructions, and maintenance instructions.

fig01479

Any Questions, Comments, Problems, or Parts Orders
Call NorthStar Product Support 1-800-270-0810

Hazard Signal Word Definitions






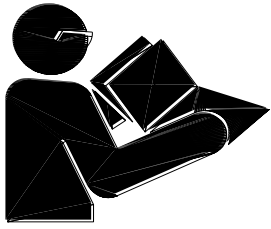
	<p>This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.</p>
	<p>DANGER (red) indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.</p>
	<p>WARNING (orange) indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.</p>
	<p>CAUTION (yellow) indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.</p>
	<p>CAUTION (yellow) used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.</p>

fig01453

Table of Contents

Important Safety Rules	4
Component Inventory.....	5-6
Unpacking.....	5
Unpacking - The Manual Bag	6
Assembly Instructions	7-15
Operation Instructions	16-17
Boom Calibration Instructions.....	18
Storage	19
Parts Breakdown	20
Limited Warranty	21

Important Safety Rules



WARNING

1.) Read this manual completely.

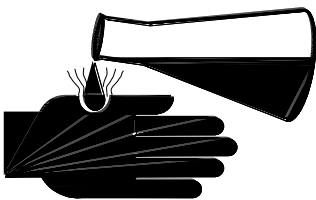
Serious injury or death can result if safety instructions are not followed.

- Everyone who operates the sprayer must read and completely understand all safety rules, operating instructions, and maintenance instructions.
- You must be 16 years of age or older to operate this sprayer.

2.) Chemicals are dangerous.

Serious injury or death can result if chemical manufactures instructions are not followed.

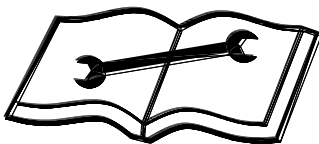
- Pump starts automatically, disconnect the power after each use or before servicing.
- Make sure boom nozzle points straight down prior to starting the sprayer. An incorrectly positioned boom nozzle may spray chemicals towards you(see Installation Instructions).
- Different chemicals may interact dangerously with each other, always flush the sprayer per the chemical manufactures directions before switching chemicals.
- Calculate the correct amount of chemical to mix, dispose of excess chemical per the manufacture's instructions.
- When wind speeds exceed 4 MPH, don't spray. Chemicals can drift into undesired locations.
- Never operate this sprayer with broken, missing, or loose parts.
- Never spray flammable liquids.
- Never point the spray gun at people or animals.



3.) Towing hazards.

Serious injury or death can occur if towing safety rules are not followed.

- Be aware of the added length of the sprayer.
- Never ride or transport cargo on the sprayer.
- Drive the vehicle with the sprayer securely attached.
- Turn off the vehicle and disconnect power to the sprayer before leaving the sprayer unattended.
- Read the vehicle owners manual before operating.
- Never tow or operate this sprayer while under the influence of alcohol, drugs, or medication.



CAUTION

1.) Storage.

- Flush the sprayer with fresh water immediately after each use. Storing the sprayer with chemicals in the system will degrade all parts of the system.
- Relieve system pressure by squeezing the gun trigger.
- Protect the sprayer from freezing during storage.

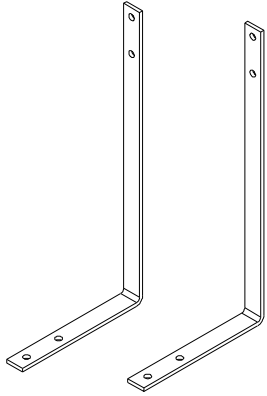
fig01547

SAVE THESE INSTRUCTIONS

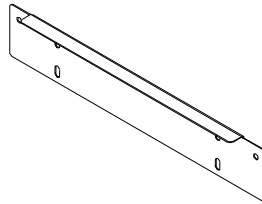
Unpacking

Closely inspect all contents in the shipping carton.

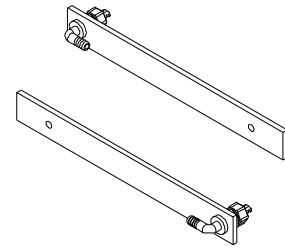
- If you have missing or damaged components then: Contact Product Support at 1-800-270-0810.



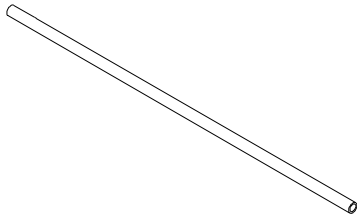
Boom Supports



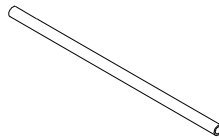
Boom Bracket



Boom Arms



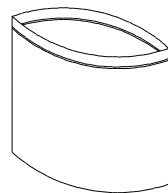
24" Hose



14" Hose



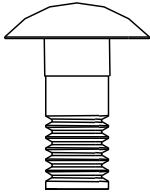
4" Hose



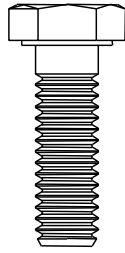
Manual Bag

FIG01555

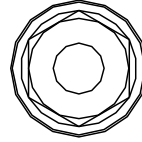
Unpacking - The Manual Bag



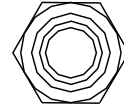
5/16" x 3/4"
Carr. Bolt (8)



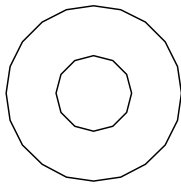
5/16" x 1"
Hex Bolt (2)



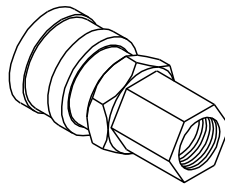
5/16"
Flange Nut (8)



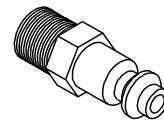
5/16"
Nyloc Nut (2)



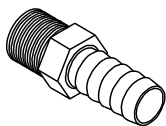
5/16"
Flat Washer (4)



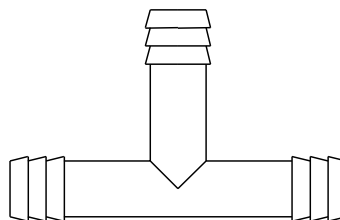
Female Quick
Connect (2)



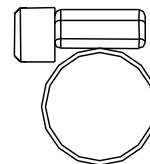
Male Quick
Connect (1)



Hose Barb (2)



Hose Barb Tee (1)

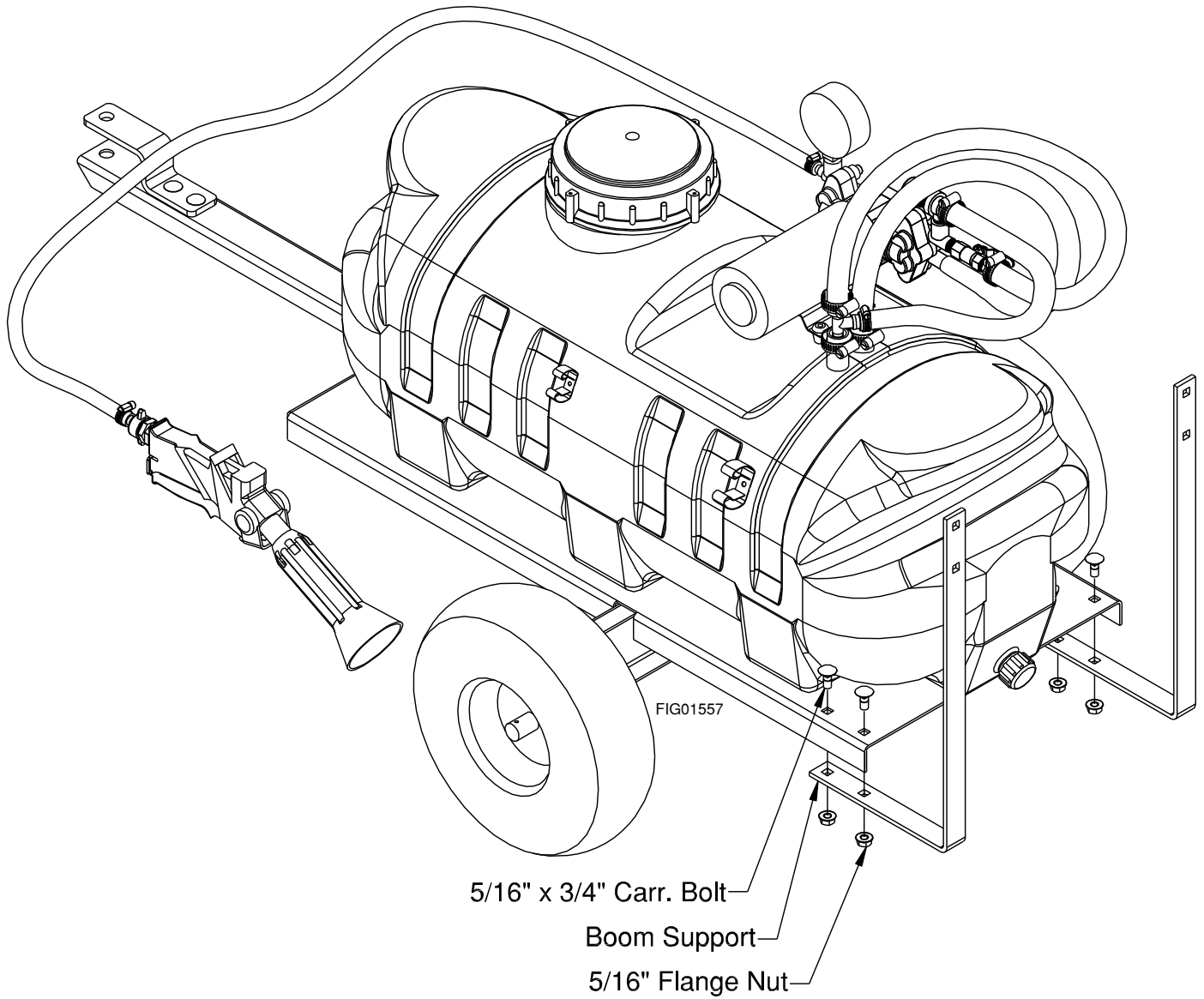


Hose Clamp (6)

FIG02068

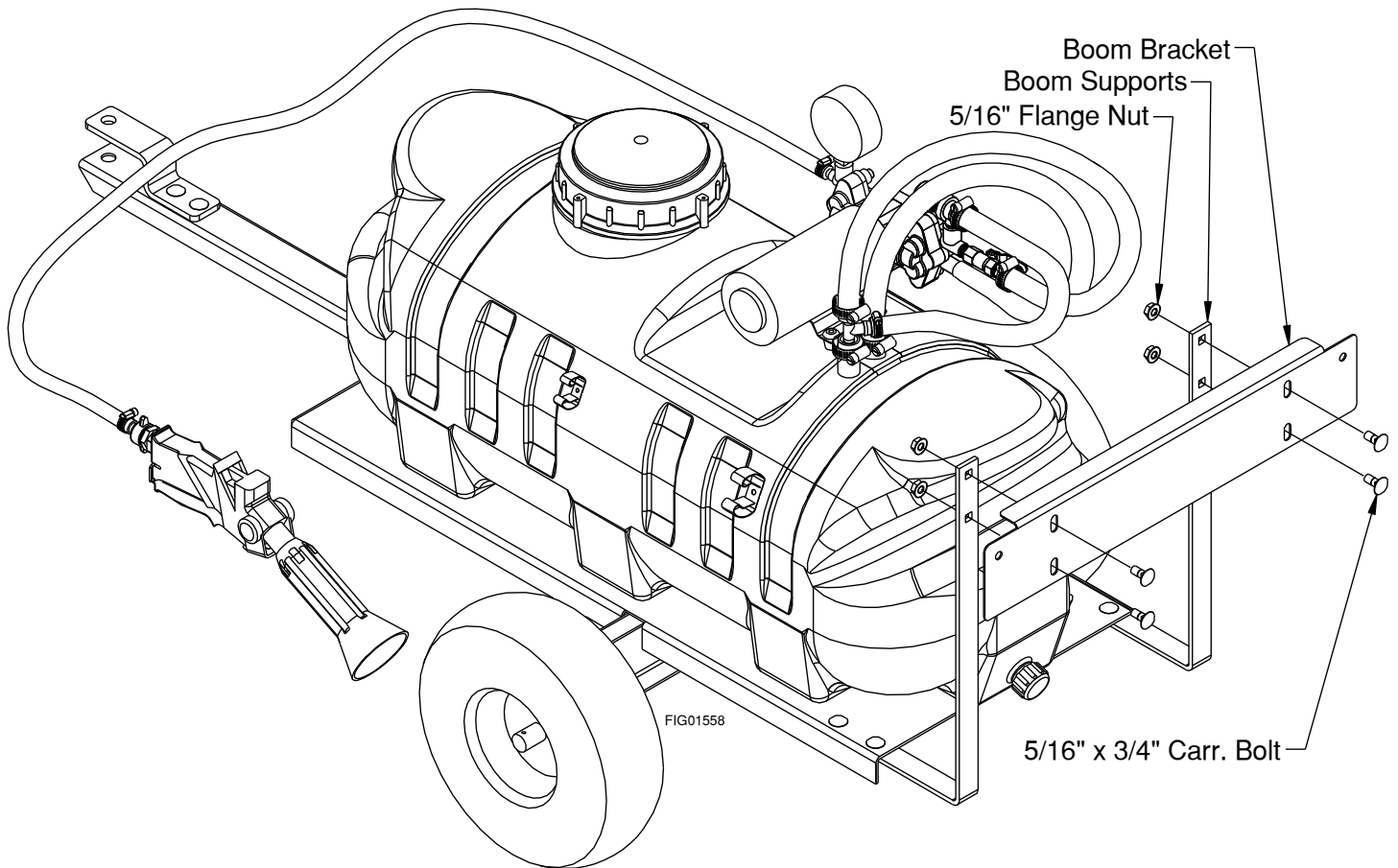
Assembly Instructions

- 1.) -Attach the boom supports to the cart base with (4) 5/16" x 3/4" carriage bolts and 5/16" flange nuts.



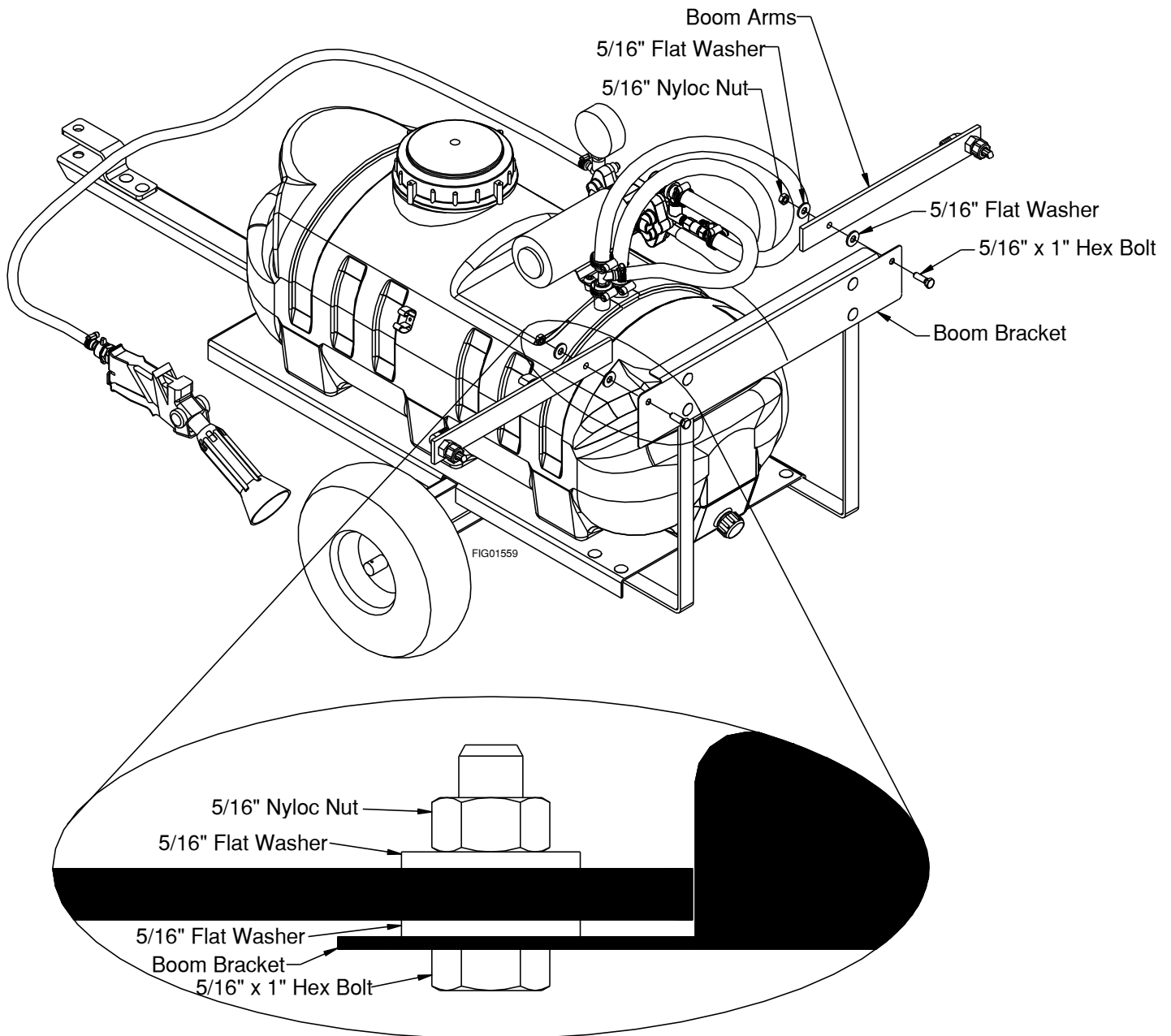
Assembly Instructions

- 2.) -Attach the boom bracket to the boom supports with (4) 5/16" x 3/4" carriage bolt and 5/16" flange nuts.



Assembly Instructions

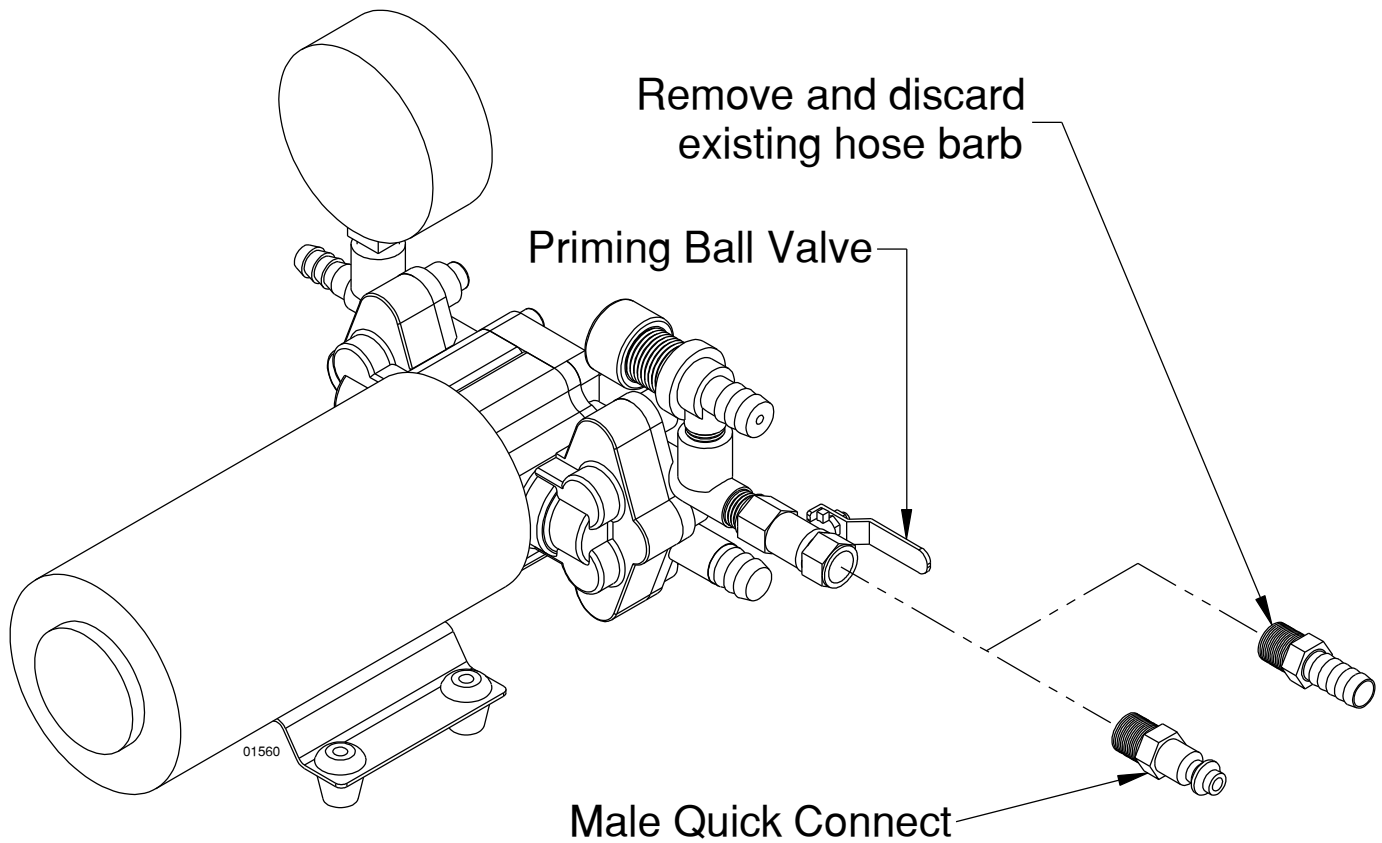
- 3.) -Attach the boom arms to the boom bracket with (2) 5/16" x 1" hex bolts, 5/16" nyloc nuts, and (4) 5/16" flat washers.
-Tighten bolts until the boom arms are able to move, but don't move freely.



Assembly Instructions

- 4.) -Disconnect the priming hose from the priming ball valve hose barb.
-Remove the hose barb from the priming ball valve.
-Thread the male quick connect into the priming ball valve (hand tighten, then 2 full turns).
-Discard the existing hose barb.

Note: Hoses not shown for clarity



Assembly Instructions

5.) -Thread the female quick connects into the hose barbs (hand tighten, then 2 full turns).

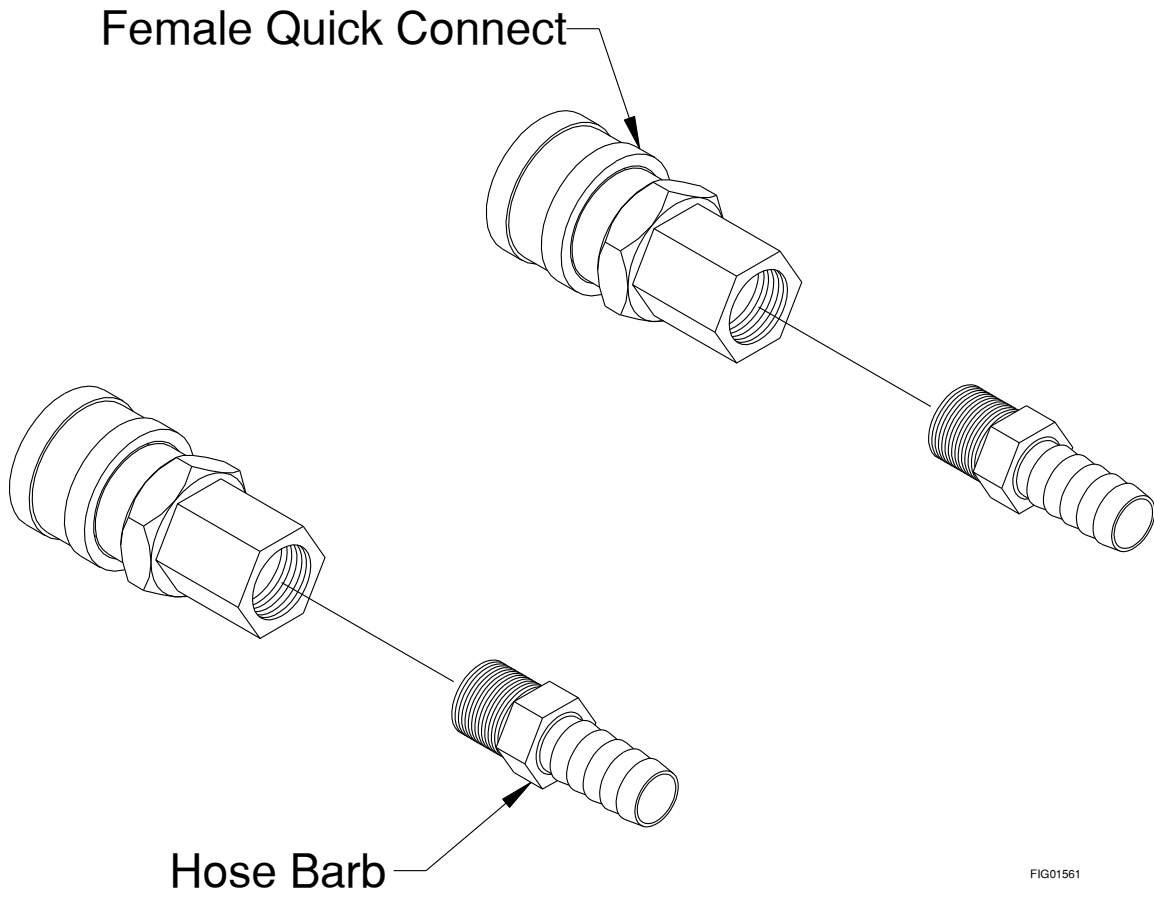


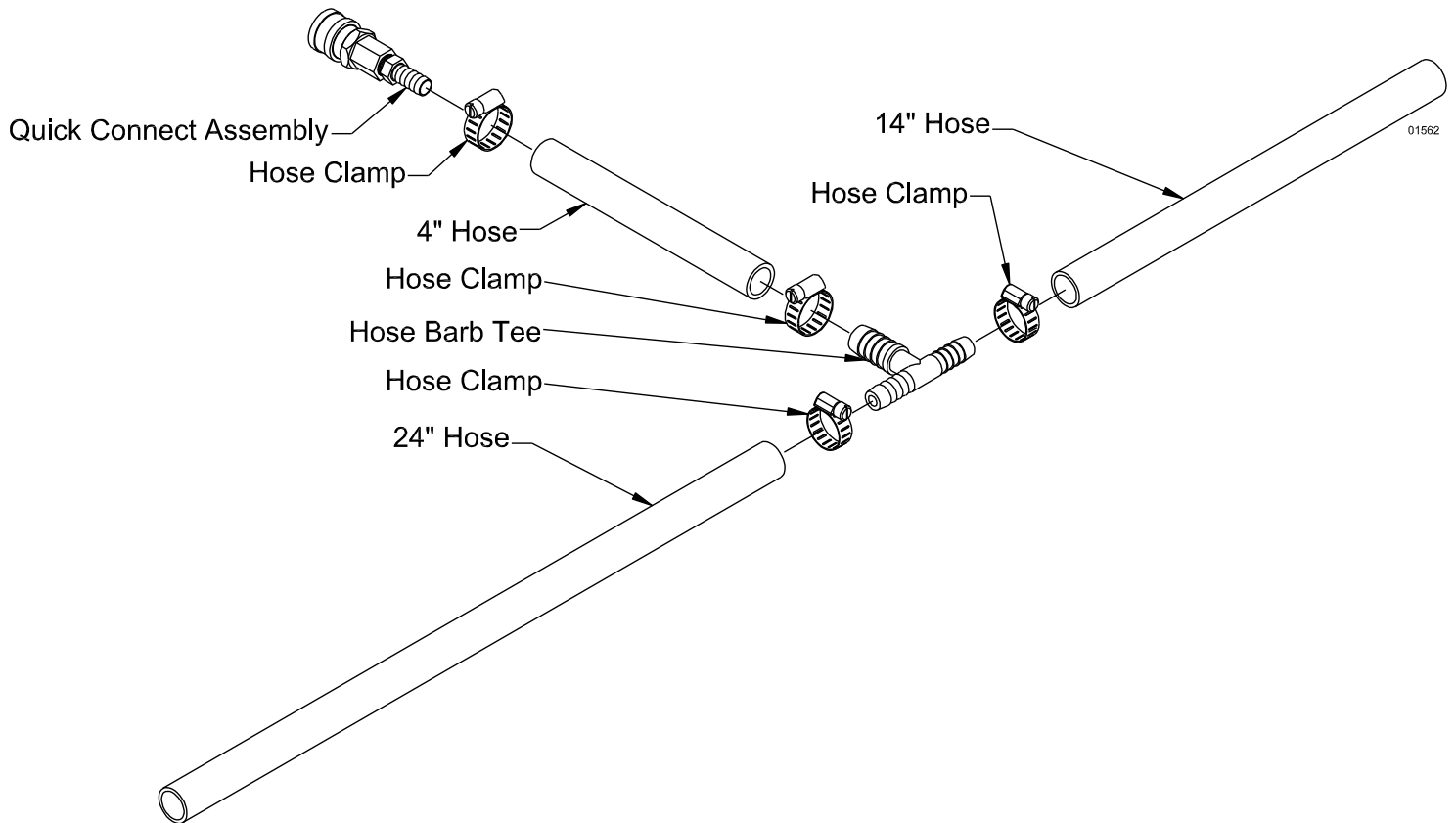
FIG01561

Assembly Instructions

- 6.) -Install the 4" hose, 14" hose and the 24" hose to the hose barb tee (follow the hose clamp instructions).
-Assemble one of the quick connects from step 5 to the other end of the 4" hose (follow the hose clamp instructions).

Hose clamp installation instructions:

- I.) Slide hose clamp over the end of hose.
- II.) Push the hose onto the hose barb.
- III.) Slide the hose clamp over the hose barb.
- IV.) Tighten the hose clamp.

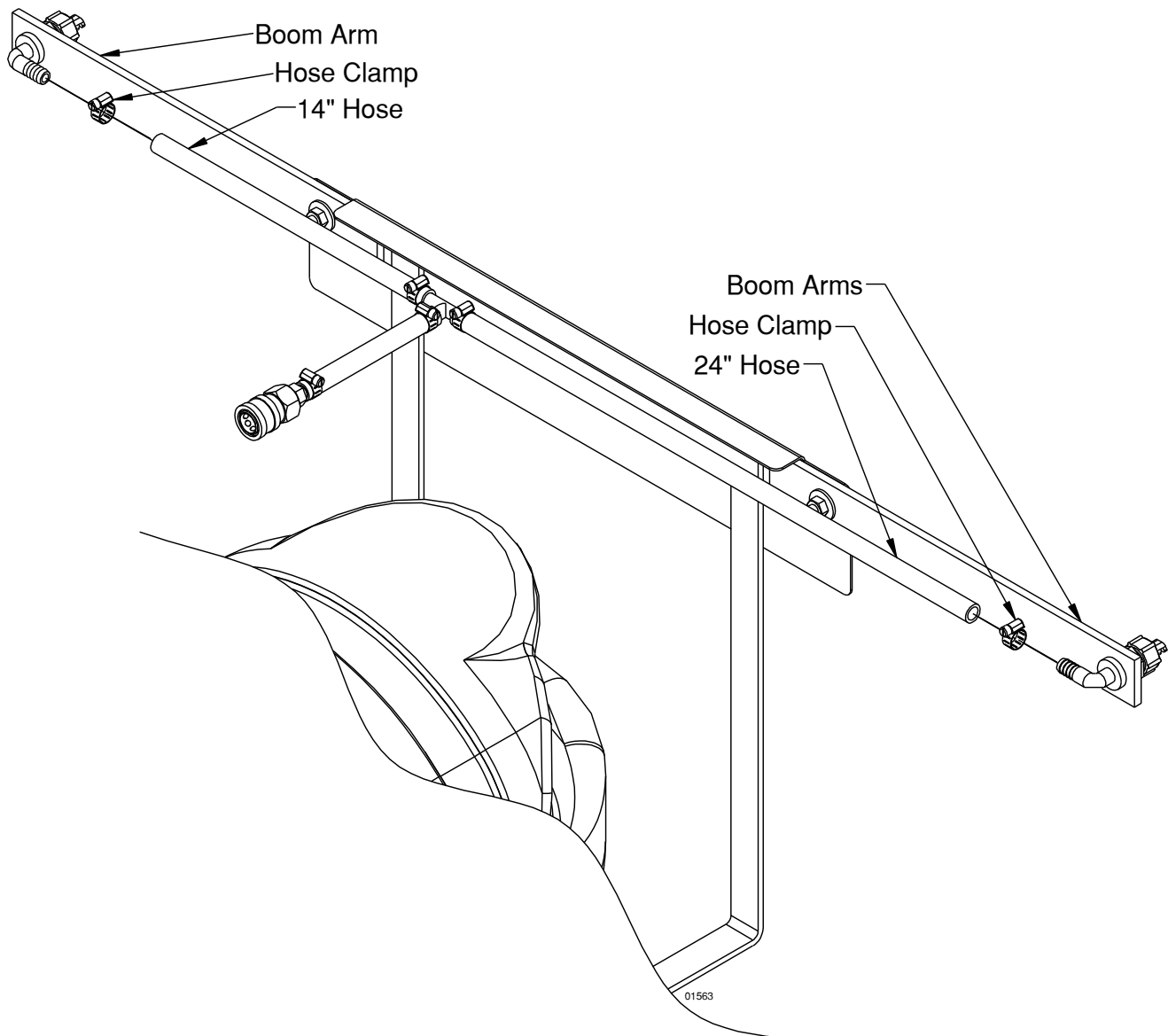


Assembly Instructions

- 7.) -Install the hose assembly from step 6 to the boom arms(follow hose clamp installation instructions below).
-Attach the other end of the 14" hose to the boom arm.
-Attach the other end of the 24" hose to the boom arm.

Hose clamp installation instructions:

- I.) Slide hose clamp over the end of hose.
- II.) Push the hose onto the hose barb.
- III.) Slide the hose clamp over the hose barb.
- IV.) Tighten the hose clamp.

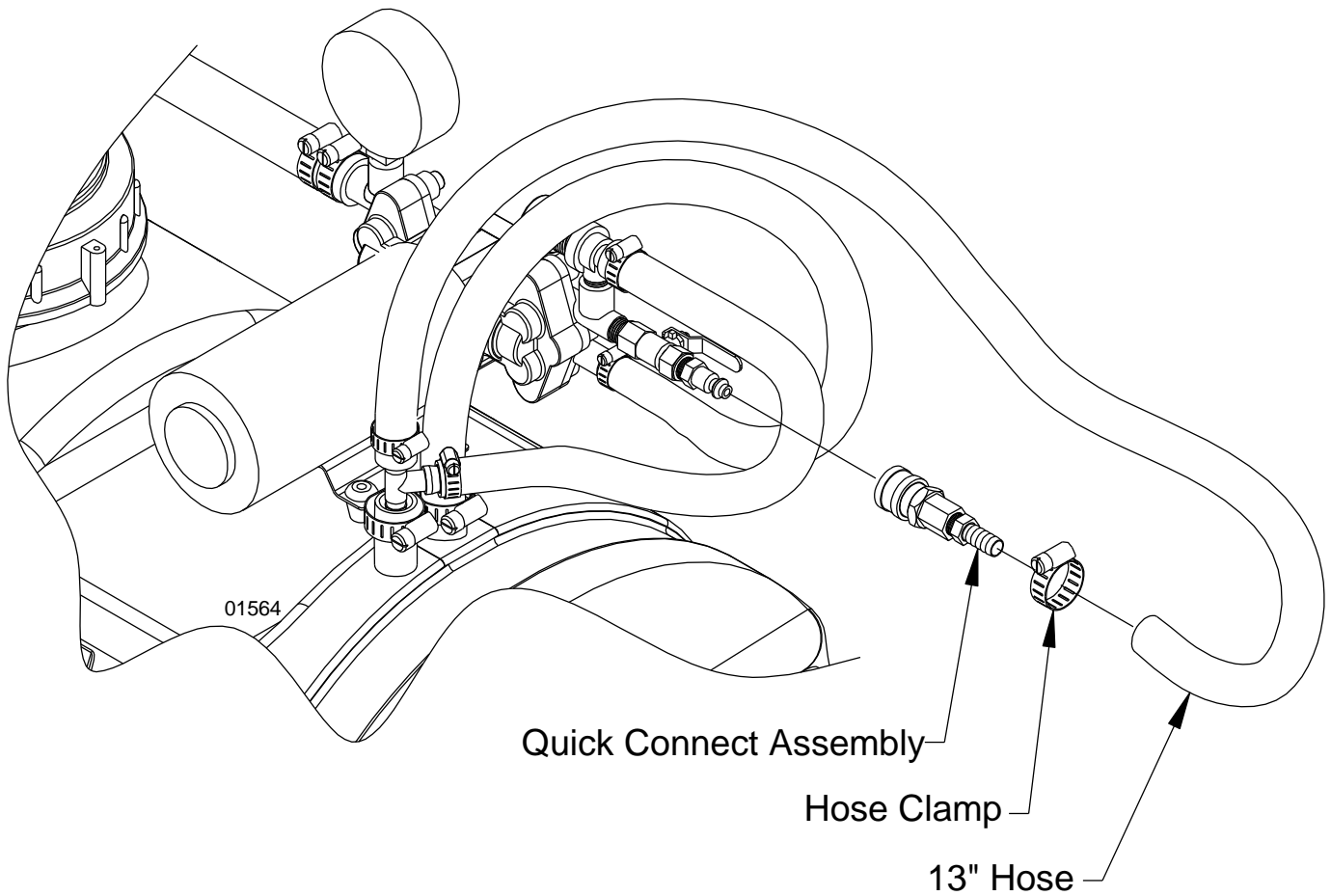


Assembly Instructions

- 8.) -Install the other quick connect assembly to the 13" hose from the sprayer with a hose clamp (follow hose clamp installation instructions below).

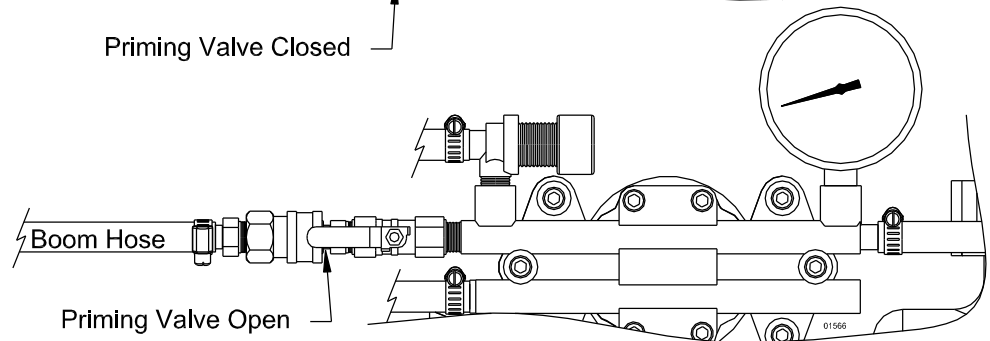
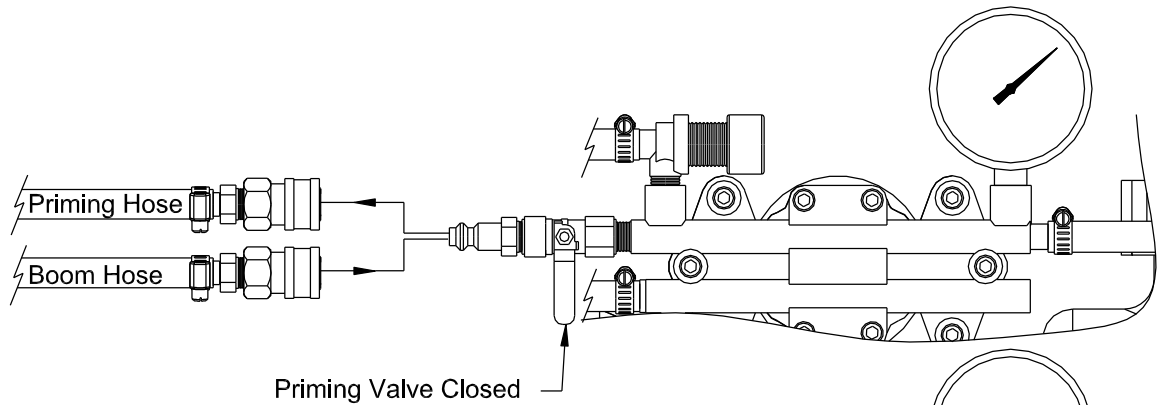
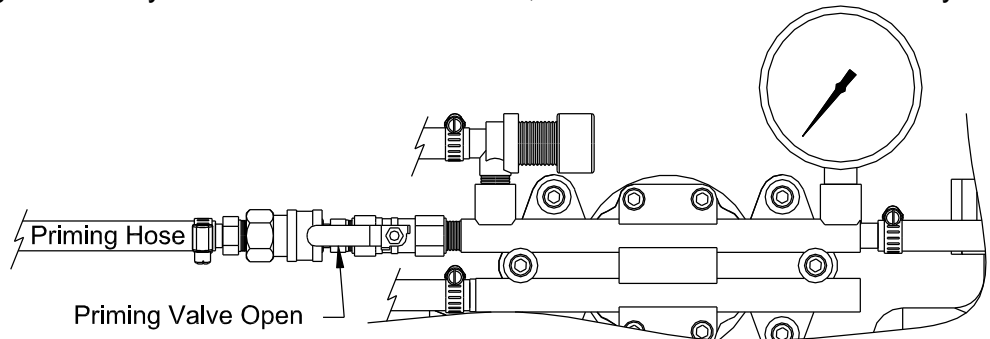
Hose clamp installation instructions:

- I.) Slide hose clamp over the end of hose.
- II.) Push the hose onto the hose barb.
- III.) Slide the hose clamp over the hose barb.
- IV.) Tighten the hose clamp.



Assembly Instructions

- 9.) Before operating the sprayer with chemicals, test for leaks, and learn the sprayer operation.
- A. Fill the tank with water.
 - B. Connect the priming hose to the priming valve.
 - C. Open the priming valve.
 - D. Plug in the power cords and turn on the pump.
 - E. Once water is flowing through the priming hose, close the priming valve.
 - F. With the priming valve closed, disconnect the priming hose and connect the boom hose.
 - G. Slowly open the priming valve.
 - H. Operate the boom as instructed in the Operation Instructions.
 - I. Check for leaks throughout the system. If a leak is detected, fix the leak and re-test the system.



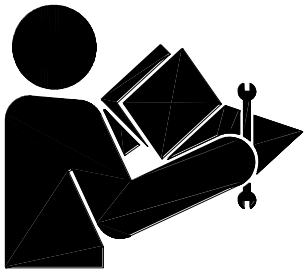
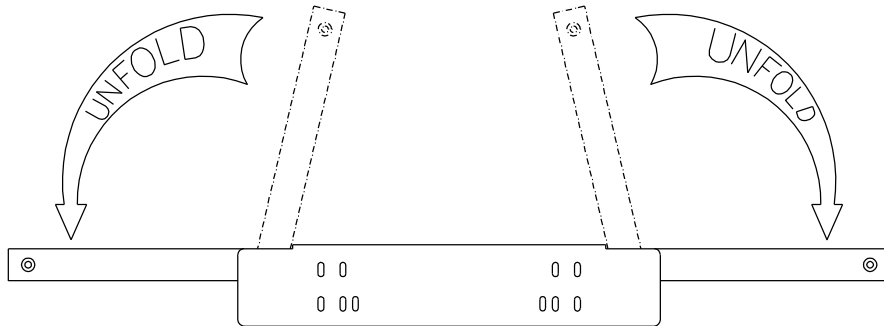
	⚠ WARNING
	<p>Assembly is now complete.</p> <p>Check to make sure all nuts, bolts, and hose clamps are tight to assure the sprayer is in safe working condition. Never modify the sprayer design. Serious injury will result if assembly steps are not followed or the design of the sprayer is modified.</p>

fig01464

Operation Instructions

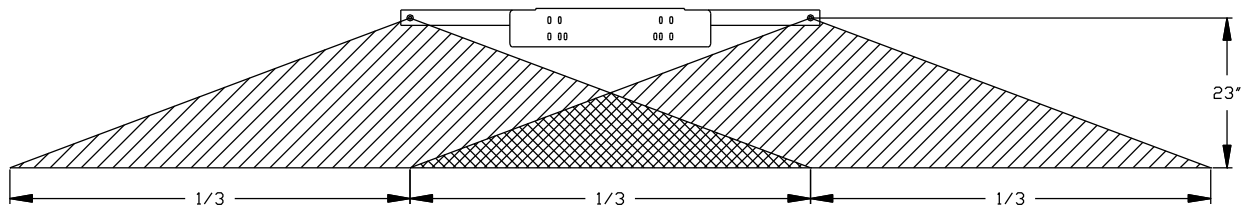
Proper Operation of the Boom

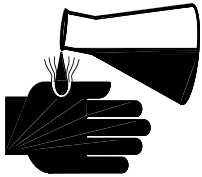
- 1.) Use the tables on the next page to determine what speed to drive your vehicle for the desired application rate.
- 2.) Unfold the boom arms as necessary for use of the desired nozzle.
- 3.) Make sure each boom nozzle is directed towards the ground.
- 4.) To ensure proper coverage, overlap the ends of the spray pattern 40".



00602

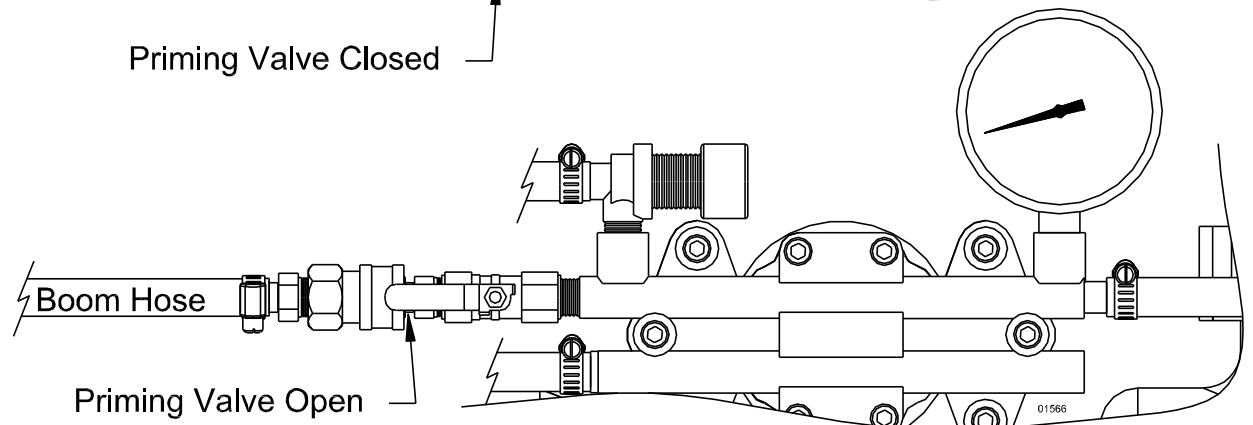
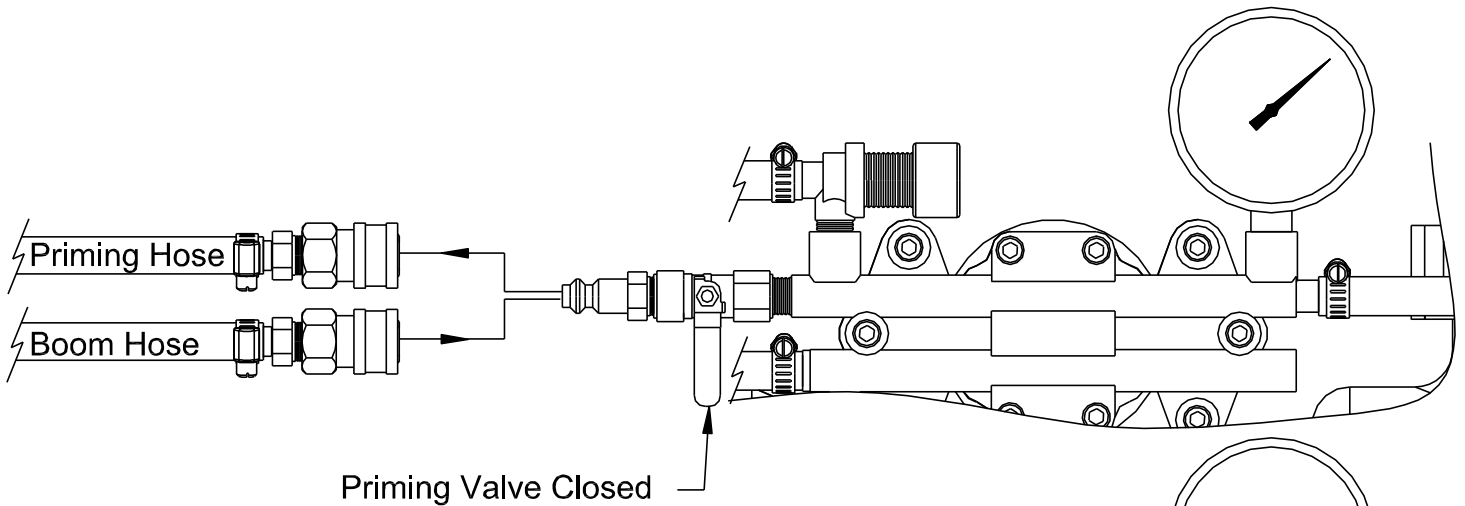
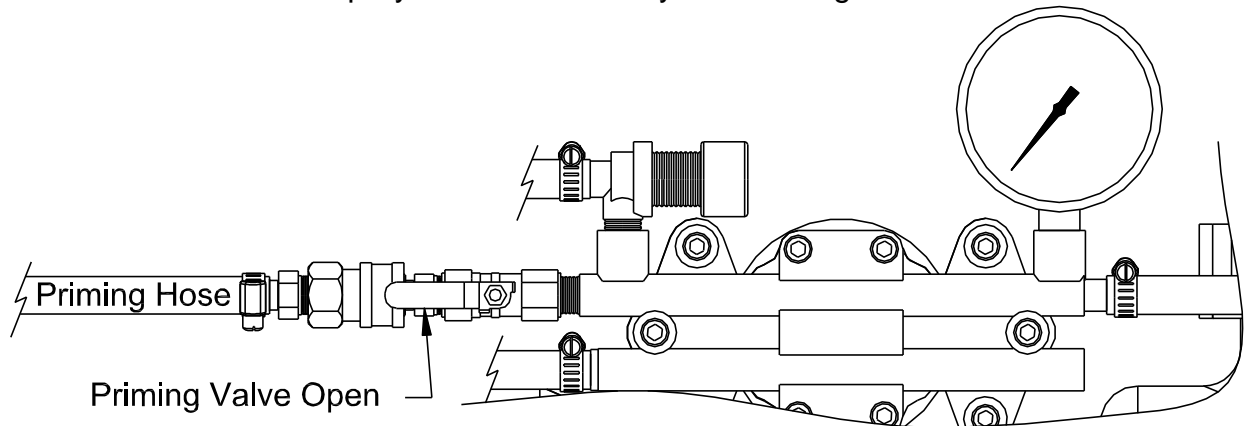
- 5.) The height of the unfolded boom nozzles should be about 23" from the ground. The sprayer must be level with the ground to get this height. This will give the correct double overlap spray pattern between the two nozzles. The overall spray width is 120", however, 1/3 or 40" of the overall spray pattern must be overlapped each pass to get equal coverage throughout the spray area.



⚠ WARNING	
	<p>Chemicals are dangerous.</p> <p>Serious injury or death can result if chemical manufactures instructions are not followed.</p> <ul style="list-style-type: none">-Pump starts automatically, disconnect the power after each use or before servicing.-Make sure boom nozzle points straight down prior to starting the sprayer. An incorrectly positioned boom nozzle may spray chemicals towards you(see Installation Instructions).-Different chemicals may interact dangerously with each other, always flush the sprayer per the chemical manufactures directions before switching chemicals.-Calculate the correct amount of chemical to mix, dispose of excess chemical per the manufacture's instructions.-When wind speeds exceed 4 MPH, don't spray. Chemicals can drift into undesired locations.-Never operate this sprayer with broken, missing, or loose parts.-Never spray flammable liquids.-Never point the spray gun at people or animals.
	<small>fig01548</small>

Operation Instructions

- 6.) Connect the priming hose to the priming valve.
- 7.) Open the priming valve.
- 8.) Plug in the power cords and turn on the pump.
- 9.) Once water is flowing through the priming hose, close the priming valve.
- 10.) With the priming valve closed, disconnect the priming hose and connect the boom hose.
- 11.) Slowly open the priming valve.
- 12.) Use the remote switch to turn the sprayer ON/OFF while you are using the boom.



Boom Calibration Instructions

Below are some guidelines to calibrate a North Star boom sprayer with DT3.0 (5218) spray nozzles. This is a very important step in operating the boom sprayer so the right amount of chemical is applied.

1. Use the suggested application rate from the chemical manufacturer (i.e. gallons per Acre, 1000 sq.ft., or 100 sq.ft.)
2. Using **Table 1**, find the application rate that most closely matches the chemical manufacturer's suggested application rate, and pressure at which the sprayer is operating.
3. Follow this application rate up the chart to find the speed at which to drive the vehicle.

TABLE 1

Spray Height	Tip #	Pressure (PSI)	Flow (GPM)	GALLONS PER ACRE - <i>Based on water @ 40" Spacing</i>						
				1 MPH	2 MPH	3 MPH	4 MPH	5 MPH	7 MPH	10 MPH
23"	DT3.0	15	.37*	54.4	27.2	18.2	13.6	10.9	7.8	5.45
23"	DT3.0	25	.47*	70.4	35.2	23.5	17.6	14.1	10.1	7.05
23"	DT3.0	35	.56*	83.2	41.6	27.8	20.8	16.7	11.9	8.35

Spray Height	Tip #	Pressure (PSI)	Flow (GPM)	GALLONS PER 1000 SQ.FT. - <i>Based on water @ 40" Spacing</i>						
				1 MPH	2 MPH	3 MPH	4 MPH	5 MPH	7 MPH	10 MPH
23"	DT3.0	15	.37*	1.25	.624	.418	.312	.250	.179	.125
23"	DT3.0	25	.47*	1.62	.767	.539	.404	.324	.232	.162
23"	DT3.0	35	.56*	1.91	.808	.638	.478	.383	.273	.192

Spray Height	Tip #	Pressure (PSI)	Flow (GPM)	GALLONS PER 100 SQ.FT. - <i>Based on water @ 40" Spacing</i>						
				1 MPH	2 MPH	3 MPH	4 MPH	5 MPH	7 MPH	10 MPH
23"	DT3.0	15	.37*	.125	.062	.042	.031	.025	.018	.013
23"	DT3.0	25	.47*	.162	.081	.054	.040	.032	.023	.016
23"	DT3.0	35	.56*	.191	.077	.064	.048	.038	.027	.019

* Approximate flow from one nozzle

4. Use **Table 2** to choose the throttle setting on the vehicle.

TABLE 2

Speed (MPH)	Time required in seconds to travel a distance of:		
	100 ft.	200 ft.	300 ft.
1	68	136	205
2	34	68	102
3	23	45	68
4	17	34	51
5	14	28	41
7	9.5	19	29
10	7	14	20

5. The coverage area can be found by dividing a full tank (ie; 16, 26, 55, 200 gals) by the application rate.

Example: 16 gallons divided by 30 gallons/acre = 1/2 acre of coverage per tank.

Storage

Short Term Storage

Prepare the sprayer for short-term storage by thoroughly flushing the system per the chemical manufacturer's recommendations. This will protect all components from chemical attack, and prolong the life of the sprayer.

Follow These Steps

1. Properly dispose of any remaining chemical per the chemical manufacturer's recommendations.
2. Add 5 gallons of the chemical manufacturer's recommended cleaning solution.
3. Turn on the pump and open the boom valve and operate the spray gun to remove any remaining chemical in the boom and gun hose.
4. Dispose of the remaining chemical per the chemical manufacturer's recommendations.

Long Term Storage

Prepare the sprayer for long-term storage by running antifreeze through the system. This will keep internal parts lubricated, protect against corrosion, and keep the unit from freezing.

Follow These Steps

1. Pour 1 gallon of RV antifreeze into the tank.
2. Turn on the pump motor and place containers under the nozzles to capture the antifreeze when it comes out. Open boom valves briefly until antifreeze begins to exit the nozzles. Squeeze the gun trigger briefly until fluid begins to exit.
3. When removing from storage, drain the antifreeze left in the tank into a container. Fill the tank with fresh water and run through the system, opening boom lines until the system is completely flushed. Be sure to set up containers to capture the antifreeze.



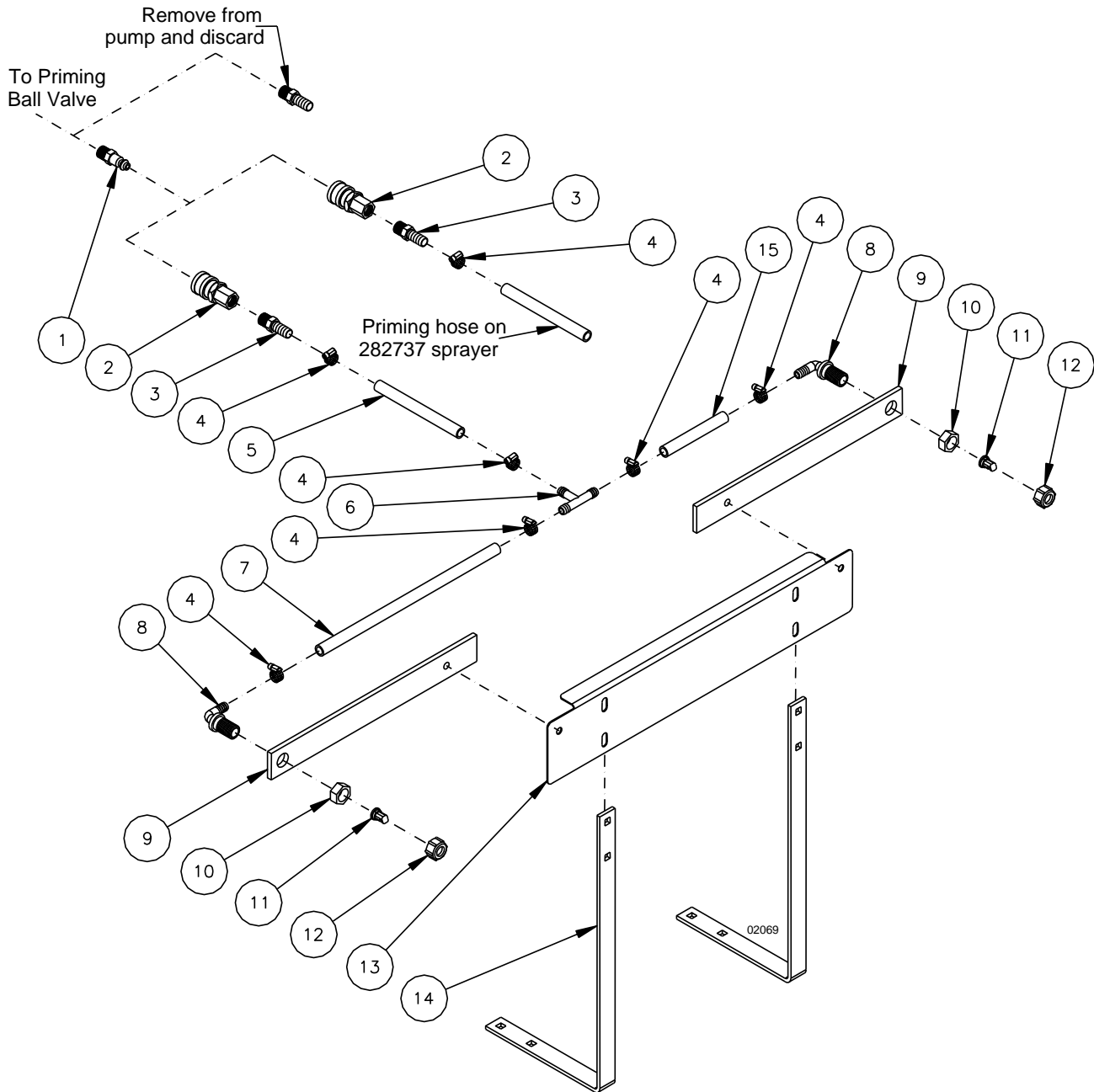
	<p style="text-align: center;">⚠ WARNING</p> <p>Chemicals are dangerous.</p> <p>Serious injury or death can result if chemical manufacturer's instructions are not followed.</p> <ul style="list-style-type: none">-Pump starts automatically, disconnect the power after each use or before servicing.-Make sure boom nozzle points straight down prior to starting the sprayer. An incorrectly positioned boom nozzle may spray chemicals towards you (see Installation Instructions).-Different chemicals may interact dangerously with each other, always flush the sprayer per the chemical manufacturer's directions before switching chemicals.-Calculate the correct amount of chemical to mix, dispose of excess chemical per the manufacturer's instructions.-When wind speeds exceed 4 MPH, don't spray. Chemicals can drift into undesired locations.-Never operate this sprayer with broken, missing, or loose parts.-Never spray flammable liquids.-Never point the spray gun at people or animals.
	<p style="text-align: center;">CAUTION</p> <p>Storage.</p> <ul style="list-style-type: none">-Flush the sprayer with fresh water immediately after each use. Storing the sprayer with chemicals in the system will degrade all parts of the system.-Relieve system pressure by squeezing the gun trigger.-Protect the sprayer from freezing during storage.

fig01550

Exploded View - 282738 - Rev. B.1



Item	Part#	Description	Qty.
1	35221	Male Quick Connect	1
2	36020	Female Quick Connect	2
3	35113	Hose Barb	2
4	30746	Hose Clamp	6
5	30290	4" Hose	1
6	5329	Hose Barb Tee	1
7	30290	24" Hose	1
8	5383	Elbow	2

Item	Part#	Description	Qty.
9	30172	Boom Arm	2
10	5230	Nozzle Nut	2
11	5218	Nozzle	2
12	777853	Swivel Nut	2
13	37697	Boom Bracket	1
14	37698	Boom Supports	2
15	30290	14" Hose	1

Any Questions, Comments, Problems or Parts Orders
Call NorthStar Product Support 1-800-270-0810

Limited Warranty

Dear Valued Customer:

The NorthStar Product you just purchased is built with the finest material and craftsmanship. Use this product properly and enjoy the benefits from its high performance. By purchasing a NorthStar product, you show a desire for quality and durability. Like all mechanical equipment this unit requires a due amount of care. Treat this unit like the high quality piece of machinery it is. Neglect and improper handling may impair its performance. Please thoroughly read the instructions and understand the operation before using your product.

Limited Warranty

NorthStar shall warranty any piece of equipment manufactured, or parts of equipment manufactured, to be free from defects in material or workmanship for a period of 90 days for noncommercial/nonrental use and a period of 90 days for commercial/rental use from the date of purchase by user.

NorthStar shall warranty any wear item, including, but not limited to, valves, seals, pump diaphragms, hoses, and filter elements to be free from defects in material or workmanship for a period of 90 days from the date of purchase by user. This warranty applies to the original purchaser of the equipment and is non transferable. Verification of purchase is the responsibility of the buyer. Parts will be replaced or repaired at no charge, except when the equipment has failed due to lack of proper maintenance. Any misuse, abuse, alteration or improper installation or operations will void warranty. Determining whether a part is to be replaced or repaired is the sole decision of NorthStar.

NOTE: Some services performed by parties other than NorthStar may void warranty.

This warranty covers parts only. It will not provide for replacement of complete products due to defective parts. Components not manufactured by NorthStar are guaranteed by their manufacturer and can be serviced at factory-authorized locations near you. Any costs incurred due to replacement or repair of items outside of a NorthStar approved facility is the responsibility of the buyer and not covered under warranty. NorthStar can supply you with the service center location in your area.

This warranty specifically excludes the following; failure of parts due to damage caused by accident, fire, flood, windstorm, acts of God, applications not approved by NorthStar in writing, corrosion caused by chemicals, use of replacement parts which do not conform to manufacturer's specifications, and damage caused by vandalism. Additional exclusions: loss of running time, inconvenience, loss of income, or loss of use, including any implied warranty of merchantability of fitness for a specific use.

Warranty does not cover items subject to normal wear such as tires, receptacles or any part subject to direct physical contact by the public. This warranty does not cover any personal injury or damage to surrounding property caused by failure of any part.

This warranty is in lieu of any other warranty expressed or implied and NorthStar assumes no other responsibility or liability outside that expressed within this warranty.

Please fill in the following information and have it on hand when you call in on a warranty claim.

Customer Number: _____

Date of Purchase: _____

NorthStar Serial Number: _____

Item Number: _____



Manufactured by
Northern Tool + Equipment Co.,
2800 SouthCross Drive West
P.O. Box 1499 Burnsville, MN 55337-0499